

MEASURING COSTS OF QUALITY IN HIGHER EDUCATION

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Abstract

For over a decade, empirical studies in the quality management literature have attempted to analyze the economic benefits of quality improvement programs realized by manufacturing organizations. Top management noticed that quality is particularly important to organization's strategy for increasing profit, reducing costs and developing competitive advantage. It has been noticed several years ago by Lithuanian governmental organizations, especially today it seen in the high education area which is working on quality assurance programs. One of the economical measurements within higher education quality management system could be quality cost measurement and analysis. This paper will focus on two things: higher education quality elements in the context of quality assurance system, and the constructive of quality costs system in order to avoid unplanned expenditures on unexpected high education quality aspects.

Keywords: higher education quality, quality costs system.

JEL classification: M21.

Introduction

In Lithuania, during the recent decade an issue of ensuring a high quality in higher education became not only a political, economical, but also a social problem. Rapid economical, social, and technological changes continue to contribute to increasing competitiveness in markets. More and more organizations look for highly-educated professionals able to offer good and practical ideas useful for their business development. Currently, institutions of higher education play one of the major roles in developing young specialists and ensuring quality of higher education.

Before the end of 2010, based on Lisbon strategy, institutions of higher education were aimed at modernization of higher education while creating a common European higher education area through choosing a system of clear and comparable degrees based on two cycles in higher education, introducing a system of credits, encouraging mobility of students and lecturers, ensuring quality of higher education, and generally strengthening and expanding the idea of European higher education.

In-depth reports prepared by European Union will show if Lithuania was successful at implementing Lisbon Strategy Goals, however theoretically it can be stated that those could be achieved only under conditions of knowledge-based economy that ensure balanced economical development and social coherence of a country (Bartusevičienė, 2006).

In the National Audit Office Report 2007, the organization of studying at universities and use of funds allocated for studies and education as well as investment, through measuring and evaluating the following: if funds allocated for studies satisfy the need for them; funds allocated from the State budget for universities are linked to the quality of corresponding study programmes and performance of universities; <...> internal and external quality systems comply with the European guidelines for quality assurance in higher education; property and assets of universities are managed efficiently, was found that making budget allocations for universities do not comply with the legal regulations. Studies are allocated only a half of the amount of funds calculated based on the methodology of establishing a need for budget allocations for educational and studies' institutions of the Republic of Lithuania, consequently universities have no choice but to allocate part of the received income for financing studies that otherwise could be used for education development, employee qualification raising, improvement of material base of education and studies, etc.

The World Bank Annual Report 2009 emphasizes that one of the major problems in Lithuanian higher education is the level of financial resources allocated for the higher education.

Martinaitis (2010) suggests the following three alternative ways for reduction of the lack of financial funds in higher education: first, maintaining the status quo; second, reduction in number of studying persons, and third, increasing funding for higher education. The first two alternatives will continue aggravating condition of higher education in Lithuania with respect to the common European higher education area, whereas the alternative no.3 is currently unavailable in Lithuania.

In Lithuania, higher education lags behind that of the average EU member state in all the categories of results and achievements. Consequently, it's true to say that higher education institutions are unable to use financial resources effectively even if these are made available to them.

Modern quality assurance system in higher education is inherently associated with quality measurement of strategic implementation efficiency, performance, wastage, etc. One of the economical measurements within higher education system could be cost measurement and analysis. Quality costs system could help planning the higher education quality assurance systems' expenditures on quality aspects in order to avoid unplanned expenditures on other quality aspects.

Given the aforesaid, the following objective of this research paper was formulated: can quality costs measurement framework be used as a method of planning, implementation, measurement and improvement to ensure quality in higher education by effectively using allocated resources?

Object of the research: quality cost system in the context of quality assurance system in higher education institutions.

Methodology of the research: logical, systematic analysis of scientific papers, situational analysis based on comparative and summary methods.

The quality concept in higher education

Quality assurance in higher education is by one of important question nowadays. All over the world there is an increasing interest in quality and standards, reflecting both the rapid growth of higher education and its cost to the public and the private purse. According to the best Business Schools ranking (2010) the best business school in the world is Harvard Business School.

Value of a business school is not only the quality of the professors, the campus facilities or any of the other things. These factors are obviously important. Lots of ranked schools especially Harvard Business School have them. But there's only one thing that really differentiates one business school from another: The amount the school will help your future career (Delevingne & Blodget, 2010)

Most important factors are:

- the value of the school's brand (how others perceive the quality of the school), and
- the network of contacts you build while you're there.

These two things - a credential that will cause future employers, executives, investors, and journalists to be impressed by you and a high-power social network - will help your career more than any particular accounting course or case study.

Accordingly, if Europe want to achieve its aspiration to be the most dynamic and knowledge-based economy in the world (Lisbon Strategy), then European higher education will need to demonstrate that it takes the quality of its programs and awards seriously and is willing to put into place the means of assuring and demonstrating that quality.

Higher education institutions should have a policy and associated procedures for the assurance of the quality and standards of their programs and awards (Vanagas & Vilkas, 2008). They should also commit themselves explicitly to the development of a culture which recognizes the importance of quality, and quality assurance, in their work. To achieve this, institutions should develop and implement a strategy for the continuous enhancement of quality. The strategy, policy and procedures should have a formal status and be publicly available.

Opinions about quality definition in higher education are not unified. Prof. Laužackas identified four different approaches to defining higher education quality (see. 1 table).

Table 1. Different approaches of higher education quality definition

Conception	Characterization
Dynamical	Quality is continually changing target which depends on the particular internal and external factors.
Subjective	Bodies of interest multipliers, individuals understand it differently, making it difficult to find a unified definition.
Multidimensional	A diversity of approaches for describing differences between parameters and indicators.
Multiconceptual	Counting over 15 different quality approaches.

According to wide range of different higher education quality approaches the main concepts of higher education quality are: compliance with the objectives, performance management, exceptionality, economic benefits, confirmation to quality standards; different interest's group's satisfaction; quick reaction to environmental changes; continual development (see fig. 1).

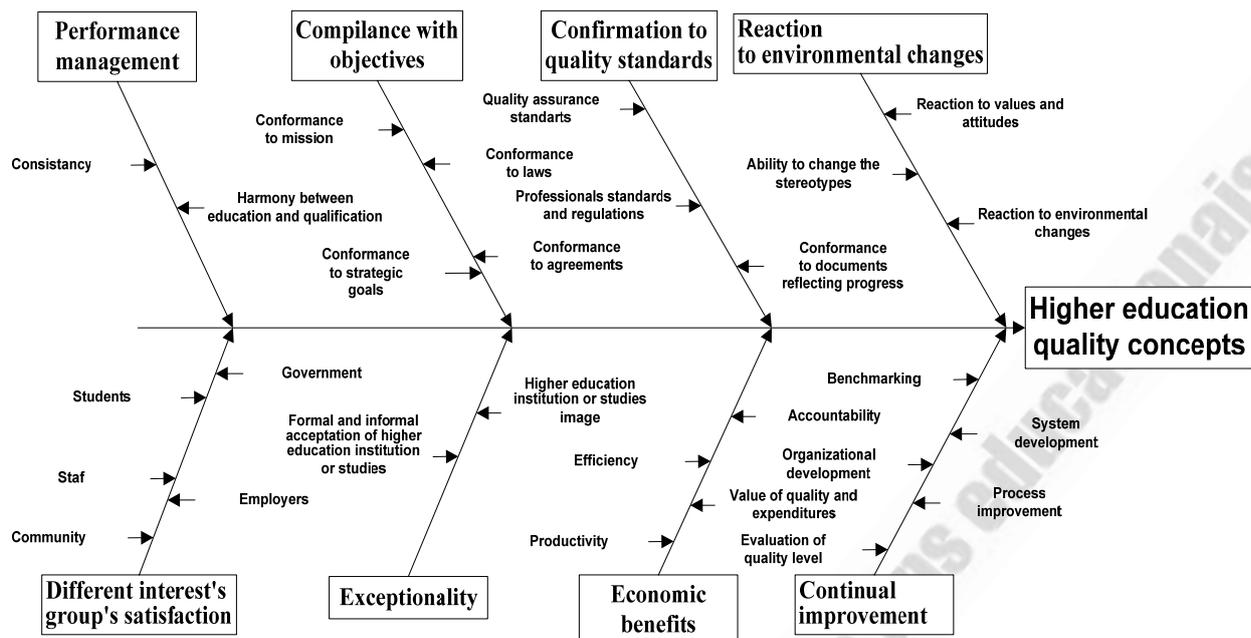


Figure 1. Higher education quality concepts

To improve quality higher education institutions should provide seven management concepts (Jonson & Golomski, 1998):

- Top management's obligation to improve organizational effectiveness.
- Identification of critical processes for improvement.
- Selection of scaleable processes.
- Measuring processes before beginning the improvement.
- Proportioning time appropriately among design, development, and implementation.
- Periodic measures taken during the improvement cycle and reporting results.
- Reporting improvements in terms meaningful to process stakeholders.

These seven key factors should evolve top management to approve quality assurance projects promising to save money without spending any.

Quality costs in higher education

Higher education is required to show the results of quality assurance results. Higher education outcomes should be measured to judge how well the institution is progressing and how effective is adopting government policy to increase the numbers of students without increased governmental financial resources. Effective costs measurement system will show improvement value and wastage mistakes of higher education quality assurance system. Also it will be useful tool for respond to government policy.

Over the past twenty years, the concept of “quality cost”, “costs of quality”, “quality economics” has been widely studied and discussed in various literature including Campanella (1999), Zhao (2000), Harrington, (2002), Dale & Wan (2002), Beecroft (2001), Schiffauerova & Thomson (2006 a, b), Gheorgina (2008), etc. The concept of “quality cost” in education firstly has been analyzed by Campanella (1999). However, there are only few published practical examples how were analyzed, collected and measured quality costs in education (Gouws & Wolmarans, 2002; Green, 2007; Akhande, & Jaju, 2009).

Traditionally the cost of quality is classified into four categories: prevention, appraisal, internal failure and external failure (see 2 fig.) Several approaches for defining quality costs categories in education were introduced in 2 table.

There are several quality cost measuring models: PAF, Crosby, Opportunity or intangible costs, Process cost, ABC (Schiffauerova & Tomson, 2006). The basic idea of these models is that systematic investment in conformance activities will reduce non-conformance costs and in the long period - the part of conformance costs - appraisal. Green (2007) cited Crosby, which believes, that all of quality measurement models can be applied anywhere – including education.

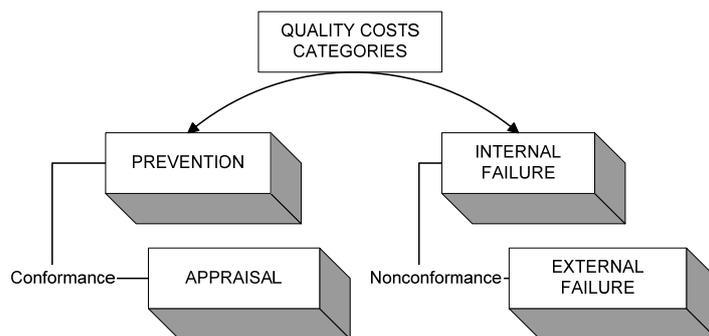


Figure 2. Costs of quality categories

Table 2. Definitions of higher education quality costs categories

Author	Quality costs category	Definition
Gouws & Wolmarans (2002)	Prevention	Prevention costs refer to any activity that reduces the dropout rate. As more is spent on the prevention of failure (to improve quality), there is a multiplier effect on the reduction of failure costs.
	Appraisal	Appraisal costs are costs related to the measurement and monitoring activities that are associated with student retention.
	Internal failure	Internal failure costs are costs incurred as result of defects and failures in the system, which contribute towards student failure and dropout.
	External failure	External failure costs are of particular concern These costs also represent quality problems that impact on students and the industry.
Green (2007)	Prevention	In education, prevention costs include induction of new teachers to ensure they fully understand the levels at which they are teaching, full course and module documentation, course committee procedures, course development procedures, back-up plans to minimize disruption caused by staff absenteeism and student care procedures.
	Appraisal	In an education setting appraisal costs are divided in two groups desirable and undesirable. Desirable appraisal costs include effective internal moderation to ensure correct marking levels, holding subject meetings in order to ensure all specialists are aware of module assessment levels within a discipline (foundation, intermediate, advanced) and regular pastoral tutor meetings to identify “at risk” students before they “drop-out”. Undesirable appraisal costs include an external examiner marking all students work due to inadequate internal moderation and checking t that the typist has correctly transcribed the minutes of the examination board.
	Internal failure	Internal failure costs include redrafting lesson plans due to inadequate specifications, re-convening examination boards due to inadequate rules and regulations along with returning typed reports for errors to be corrected.
	External failure	External failure costs include lost classes due to staff absenteeism, due to lack of module documentation and repeating classes due to ineffectual teaching.
Akhade & Raison (2009)	Prevention	The costs of all activities specially designed to prevent poor quality in technical institute products.
	Appraisal	The costs associated with measuring evaluating or auditing the technical institute products to assure conformance to quality standards and performance requirements.
	Internal failure	Internal failure costs occurring prior to the furnishing of a technical institute product to a customer.
	External failure	External failure costs occurring after the furnishing of a technical institute product to a customer.

The cost of quality system in higher education should include all needed information from accounting, operations, evaluation, marketing and etc., for the main purpose to calculate useful and functional information for the planning significant operational and strategic goals. Quality cost system can facilitate the identification and elimination of organizational non – value – added activities which do not provide or enhance quality from a

customer, in higher education case the student as a customer's, the industry as a customer's, the higher education institution as a customer's and the government as a customer's perspective (see fig. 3).

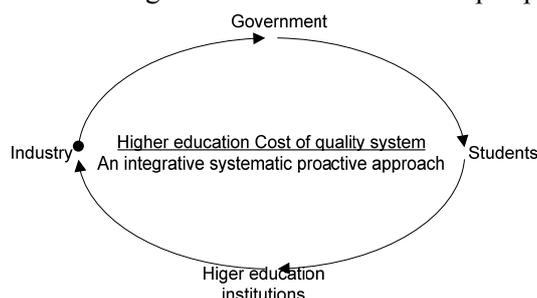


Figure 3. Higher education quality cost perspective

Project of collecting Quality costs in higher education institutions

The collection of quality cost data for analysis in higher education institutions requires the following steps:

- Identify the quality cost elements.
- Categorize the quality cost elements into prevention, appraisal and failure.
- With the cooperation of the cost accounting staff, arrange corporate accounts for ease of extracting quality cost data.
- Implement the collection of quality cost data for those elements not previously costed.
- Establish a program to extract and provide quality costs on a periodic basis. (AS 2561-2004)

The identification of quality cost elements within the overall costs of operations of a higher education institution requires a detailed understanding of the higher education quality assurance process and accounting procedures. In a four customer's perspectives quality costs examples in higher education institutions detailed in 3 table.

Table 3. Quality costs elements in higher education institutions

Quality cost categories	Quality cost elements
Appraisal	Process design Process change Quality audit Preventive maintenance etc.
Prevention	Test Measurements Evaluations and assessments Problem analysis Inspection Detection etc.
Internal failure	Defect removal (false documents, etc.) Lost process time Costs incurred to lecture to students that eventually fail Bad debts etc.
External failure	Complaints Additional training costs Time lost Lost reputation Lost of income Government subsidies wasted on university failures etc.

Collection of quality cost data should count quality elements which can be provided from the existing cost-accounting system and will count of all those quality elements which are not obtainable from cost accounting. Valuable source documents include budgets; estimates; wages and salary sheets; time sheets; service cost information; personnel performance data; purchase orders; routing cards; sales, service and field reports; and telephone and travel cost records, etc. Where actual costs cannot be readily associated with specific quality cost elements, it will frequently be necessary to estimate the proper expense allocation. If such costs are significant, then it is recommended that appropriate records be established to provide a factual basis for the cost.

In simple way the quality cost program in higher education institutions could be started from review of literature, outline program, define elements to include, select a project, talk to accounting and IT departments, collect data, define report program, present to management, define action plan and collect data again and again.

Conclusions

Quality assurance in higher education is by no means only a European concern. All over the world there is an increasing interest in quality and standards, reflecting both the rapid growth of higher education and its cost to the public and the private purse. Accordingly, if Europe is to achieve its aspiration to be the most dynamic and knowledge-based economy in the world (Lisbon Strategy), then European higher education will need to demonstrate that it takes the quality of its programmes and awards seriously and is willing to put into place the means of assuring and demonstrating that quality.

Quality cost programs should get higher education top management to take on a continuing obligation to support an improvement of higher education quality over an extended time required reasonable assurance of success and continuing good news in progress reports.

Higher education quality cost system main goals are: directly attack failures, invest in the right prevention activity, reduce appraisal costs and continuously evaluate and redirect prevention.

References

1. Akhande, G. N. & Jaju, S. B. (2009). Development of methodology for collecting quality cost in technical institute. Second international conference of emerging trends in engineering and technology, ICETET – 09, 798-801.
2. AS 2561-1982. (2004). Guide to the determination and use of quality costs. Australian standart.
3. Bartuševičienė V. (2006) Aukštojo mokslo studijų kokybės užtikrinimas Bolonijos proceso kontekste. Mokslo Lietuvos straipsniai, 16.
4. Beecroft, G. (2001). Cost of quality and quality planning affect the bottom line. The Quality Management Forum, 27, No. 1, 1-7.
5. Campanella, J. (1999). Principles of Quality Costs. Principles, Implementation and Use, 3rd edition. Milwaukee. ASQC.
6. Dale, B.G., & Plunkett, J.J. (1999). Quality Costing. 3rd edition. Aldershot. Gower Press,
7. Dale, B. & Wan, G.M. (2002). Setting up a quality costing system. Business Process Management Journal, 8 No. 2, 104-16.
8. Delevingne, L. & Blodget, H. (2010). The World's Best Business Schools. [Interactive: <http://www.businessinsider.com/worlds-best-business-schools-2010-3###ixzz1DCnV5MAc>].
9. Georghina L. D. (2008). Total quality management and quality cost. Fascicle of management technologias engineering, 7, 1881-1885.
10. Gouws, D. G. & Wolmarans H. P. (2002). Quality cost in tertiary education: Making internal failure cost visible. Meditari Accountancy Research, 10, 87–108.
11. Green, J. Quality costs in education. The TQM magazine, 19, 308-314.
12. Harrington, H. J. (2002). The Real Cost of Poor Quality. Quality Diges. June.
13. Laužackas R. (2005). Aukštojo mokslo kokybės fenomenas: kontekstas ir turinys. [Interactive: <http://www.su.lt/filemanager/download/4290/Lauzackas.ppt>]
14. Martinaitis, Ž. (2010). Aukštojo mokslo finansavimas: trupiniai begemotams. VU TSPMI. [Interactive: <http://www.postscriptum.lt/nr11-universitetas/aukstojo-mokslo-finansavimas-trupiniai-begemotams/>]
15. National Audit Office Report. (2007). National audit office.
16. a Schiffauerova, A. and Thomson, V. (2006). A review of research on cost of quality models and best practices. International Journal of Quality and Reliability Management, 23, No.4.
17. b Schiffauerova, A. and Thomson, V.(2006). Managing cost of quality: Insight into industry practice. The TQM Magazine.
18. Zhao, J. (2000). An optimal quality cost model. Applied Economics Letter, 7, 185-8.
19. Johnson, F. C. & Golomski W. A.J. (1998). Quality concepts in education. The TQM Magazine, 11, No. 6, 467-473.
20. Omachonu V. K. & Suthummanon S. (2004). The relationship between quality and quality cost for a manufacturing company. International Journal of Quality & Reliability Management, 21, No. 3, 277-290.
21. Top Business Schools Report 2010. (2010). TOPMBA.
22. Vanagas P. & Vilkas M. (2008). Development of Total Quality Management in Kaunas University of Technology. Engineering economics, 2008, 4.
23. World Bank Annual Report. (2009). World bank.

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